A SELECTED BIBLIOGRAPHY FOR AERIAL PHOTOGRAPH INTERPRETATION OF NATURAL AND CULTURAL FEATURES

LAND MANAGEMENT SERIES

REPORT NO. 1

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INTRODUCTION

The increased demand for information on terrain features to provide a framework for management practices has resulted in a growing interest within various resource agencies to obtain instructive material on aerial photograph interpretation. This bibliography was designed, therefore, to supplement the publication entitled "Interpretation of Landforms from Aerial Photographs" by N. Keser, B.C. Forest Service and to assist novice interpreters in finding suitable background material.

The selection of articles was limited primarily to those which described specific features on black and white photographs; however, some publications of a more general nature have also been included. Only material which was readily available for review has been considered and all articles have been briefly annotated.

The guidance of the late Dr. N. Keser is gratefully acknowledged as well as the assistance of Mr. T. Clements. Thanks must also be expressed to those who suggested material for inclusion.

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BIBLIOGRAPHIES AND PROCEEDINGS

Canadian Institute of Surveying. 1968. 2nd seminar of air photo interpretation in the development of Canada. Proceedings. Queen's Printer, Ottawa. 214 pp.

"The accent of this symposium is on photo-interpretation as it relates to the utilization of land resources and on the education for present and future photo-interpreters."

Fezer, F. 1971. Photo interpretation applied to geomorphology; a review. Photogrammetria. 27(1):7-53.

Selected papers of geomorphological interpretation are arranged according to the landform type.

Kruckman, L. 1972. The techniques and application of aerial photography to anthropology; a bibliography. Council of Planning Librarians Exchange Bibliography No. 339. Montecello, Ill. 25 pp.

A world-wide selection of both older and more recent literature; some papers emphasize the recognition of terrain features.

Krumpe, P.F. 1972. Remote sensing of terrestrial vegetation: a comprehensive bibliography. University of Tennessee, Knoxville, Tenn. 69 pp.

The bibliography deals with remote sensing applications in forestry, agriculture, plant ecology, and allied fields. Attention is given to material published after 1955.

Philpotts, L. and A.R. Mack. 1972. Bibliography on application of remote sensing and aerial photography to agricultural crops, soil resources and land-use. Canada Department of Agriculture, Ottawa. 69 pp.

Although this bibliography emphasizes the use of aerial photographic imagery in agricultural regions, crops, and soil resources, other areas of use have also been included. Updated versions are available.

Steiner, D. 1970. Annotated bibliography of bibliographies on photo-interpretation and remote sensing. Photogrammetria 26(4):143-161.

"The bibliography contains references to actual bibliographies as well as to manuals and books with comprehensive lists of literature, dealing with all aspects of photo interpretation and remote sensing."

U.N.E.S.C.O. 1968. Aerial surveys and integrated studies; proceedings of the Toulouse conference. Natural Resources Research Series No. 6. Paris. 575 pp.

"The papers presented at the conference dealt both with methods of ensuring the best use of aerial photographs in the study of geology, vegetation, hydrology, ecology, geomorphology, soils, etc., and with the application of those methods to integrated surveys carried out all over the world . . . ."

GENERAL REFERENCE MATERIAL

American Society of Photogrammetry. 1960. Manual of photographic interpretation. G. Banta Publishing Co., Washington. 868 pp.

Individual chapters are devoted to different applications as well as to the fundamentals of aerial photograph interpretation and keys for identification.

Avery, T. E. 1968. Interpretation of aerial photographs. 2nd. Edition. Burgess Publishing Co., Minneapolis. 324 pp.

The topics of photogrammetry, geometry of photos and measurements, and sources of aerial photographs are discussed. Mapping, remote sensing, identification of agricultural and land-use patterns and forestry applications are also described.

Branch, M.C. 1971. City planning and aerial information. Harvard University Press, Cambridge, Mass. 277 pp.

General information on aerial photography is presented as well as brief coverage of feature identification. An extensive bibliography is provided.

Frost, R.E. 1953. Factors limiting the use of aerial photographs for analysis of soil and terrain. Photogrammetric Engineering. 19(3):427-436.

"The limiting factors have been grouped into six major categories: photographic, human, natural, method, time, and use of supplementary information."

O'Neill, H.T. 1953. Keys for interpreting vegetation from air photographs. Photogrammetric Engineering. 19(3):422-424.

The function of aerial photographic keys and the standards of reference for keys are described.

Seymour, T.D. 1957. The interpretation of unidentified information. A basic concept. Photogrammetric Engineering. 23(1):115-121.

Procedures for the objective identification of features are given.

Spurr, S.H. 1960. Photogrammetry and photo interpretation, with a section on applications to forestry. 2nd edition of aerial photographs in forestry. Ronald Press Co., New York. 472 pp.

The book presents types of aerial photographs, photogrammetry, mapping, and photo interpretation of geology, soils, vegetation, and human activities.

Stone, K.H. 1956. Air photo interpretation procedures. Photogrammetric Engineering. 22(1):123-132.

Aerial photograph analysis techniques, topics for identification and the use of aerial photograph interpretation keys are discussed.

Strandberg, C.H. 1967. Aerial discovery manual. J. Wiley and Sons, Inc., New York. 249 pp.

Background information and a description of techniques precedes information presented on photogeology and photohydrology.

Wanless, H.R. 1965. Aerial stereo-photographs for stereoscope viewing in geology, geography, conservation and forestry. Hubbard Scientific Co. Northbrook, Ill. 92 pp.

"The collection of stereo-aerial photographs has been selected to provide a portfolio for the study of landforms, rock structure, vegetation, soils, and conservation, as well as many cultural features. Each picture is accompanied by a description of the region and the prominent features are keyed to the index grid system."

INTERPRETATION OF NATURAL FEATURES

I. GEOLOGY, GEOMORPHOLOGY AND PEDOLOGY

Allum, J.A.E. 1962. Photogeological interpretation of regional metamorphism. Photogrammetric Engineering. 28(3):418-438.

"The process of photogeological interpretation is considered and the use of photogeological 'keys' deprecated. Emphasis is laid on the importance of developing a legend specifically adapted to photogeological work.

Several stereopairs of aerial photographs are discussed with special reference to that geological information which can be obtained reliably, and in some cases only, from the photographs.

. . . . . .

Eight principles of interpretation (not all of them original), developed from the discussion, are stated explicitly."

Allum, J. A.E. 1966. Photogeology and regional mapping. Pergamon Press, Oxford. 107 pp.

Structural and lithological interpretation, map compilation, and the use of aerial photographs in the field are described.

Burger, D. 1957. Identification of forest soils on aerial photographs. Forestry Chronicle. 33(1):54-60.

"Three major components of the stereoscopic image, namely relief, vegetation and land use, are used to identify forest soils in terms of parent material (texture and mineralogical composition), moisture regime, and depth to bedrock."

Burgess, L.C. 1967. Airphoto interpretation as an aid in flood susceptibility determination. Department of Energy, Mines and Resources, Ottawa. 16 pp.

". . . direct and indirect evidence of past flooding must be carefully analyzed in order to assign a specific area to a susceptibility class. All factors must be considered since few indicators will be sufficient in themselves."

The meterologic, physiographic, geomorphic, topographic, pedologic and socio-economic indicators of flooding are discussed.

Dishaw, H.E. 1967. Massive landslides. Photogrammetric Engineering. 33(6):603-608.

"The location of these massive landslides can usually be delineated and broad engineering properties of the materials can be predicted. Engineers and geologists investigating construction sites should know the location, size and significance of these massive earth movements."

Evans, R. 1972. Air photographs for soil survey in lowland England: Soil patterns. Photogrammetric Record. 7(39):302-322.

"Eight soil patterns are described which were visible on air photographs and which proved useful when mapping soils. They are of two types; those associated with former estuarine and coastal marshes and those formed during the last Ice Age. Some patterns are best recorded during spring when the ground is bare of crops but others show only as crop patterns during summer."

Fletcher, R.J. 1964. The use of aerial photographs for engineering soil reconnaissance in Arctic Canada. Photogrammetric Engineering. 30(2):210-219.

"Soil and vegetation features that indicate unstable soil and detrimental permafrost, as well as the identification of rock type, are summarized and illustrated on aerial photographs. The engineering quality and photographic recognition of a variety of Arctic landforms is treated in detail."

Gimbarzevsky, P. 1964. The significance of landforms in the evaluation of forest land. Pulp and Paper Magazine of Canada. Woodlands Review. 64(7):302-317.

The paper considers photographic analysis of land conditions and the establishment of productivity classes. The productive capacity of different landforms is analyzed.

————————1966. Land inventory interpretation. Photogrammetric Engineering. 32(6):967-976.

"The recognition of landforms and surficial deposits on aerial photographs may be used quite successfully for mapping and evaluation of land resources. It is based on stereoscopic analysis of the surface patterns recognized on aerial photographs: landforms, drainage, erosion, vegetation, land use and photo-tone. The land's productive capacity within a broad climatic region is determined from consideration of local topography, slope, aspect, origin of parent material, soil texture, depth to bedrock and moisture regime."

Gravenor, C.P., R. Green, and J.D. Godfrey. 1960. Air photographs of Alberta. Province of Alberta. Research Council of Alberta. Queen's Printer, Edmonton. 39 pp.

The major landforms and structural features of Alberta are described by means of aerial photographs.

Hemphill, W.R. 1958. Small-scale photographs in photogeologic interpretation. Photogrammetric Engineering. 24(4):562-567.

"Small-scale photographs (1:50,000-scale or smaller) are advantageous in photogeologic interpretation because they show a comparatively large area that can be viewed stereoscopically.

. . . . . .

Illustrations include both small-scale and large-scale photographs for comparison, showing widely differing geologic and terrain conditions."

Kellerhals, R., M. Church and D.I. Bray. 1975. Classification and analysis of river processes from air photos and maps. Presented at the Hydraulic Engineering for Optimal Use of Water Resources, American Society of Civil Engineers Conference. University of Washington, Seattle. 37 pp.

"A system of river classification is presented, somewhat modified from previous ones, to take account of the gradual transition between classical types. The engineering significance of various river features is emphasized."

Lattman, L.H. 1958. Technique of mapping geologic fracture traces and lineaments on aerial photographs. Photogrammetric Engineering. 24(4):568-576.

Aerial photographic evidence indicative of fractures is presented and various mapping techniques are described.

_____ and R.G. Ray. 1965. Aerial photographs in field geology. Holt, Rinehart and Winston, New York. 221 pp.

"The text is divided into chapters devoted to a general discussion of aerial photographs, to their geometry and viewing, and especially to procedures for their effective use in the field."

Lueder, D.R. 1959. Aerial photographic interpretation. Principles and applications. McGraw-Hill Book Co. Inc., 462 pp.

". . . the book covers the fundamentals of aerial photographic theory and technique, . . . surveys and discusses the various landforms and rock types . . . and shows practical uses and applications of photo interpretation in a wide variety of engineering and scientific fields."

Miller, V.C. and C.F. Miller. 1961. Photogeology. McGraw Hill Book Co. Inc., New York. 248 pp.

The book presents the basic principles of aerial photography and stereoscopy, as well as the principles of interpretation.

Mollard, J.D. 1960. Airphoto analysis and interpretation. A laboratory manual of selected air photos showing landforms and soil conditions in Western Canada. Prepared for the short 1960 course. University of Alberta. Regina, Sask. 80 pp.

A wide variety of landforms are illustrated by means of aerial photographs and detailed captions.

_____ 1972. Air photo interpretation manual. Landforms and landscapes of Canada. A stereoscopically illustrated guide to photo identification and interpretation, 2nd edition. Regina, Sask. 360 pp.

The manual contains stereograms illustrating a wide cross-section of Canadian landscapes, shown at varying photographic scales, and summmarizes aerial photographic patterns for identification.

Mollard, J.D. 1973. Air photo interpretation of fluvial features. Subcommittee on Hydrology, Associate Committee on Geodesy and Geophysics. National Research Council of Canada, Fluvial Processes and Sedimentation. Hydrology Symposium No. 9. University of Alberta, Edmonton, May 8-9, 1973. Proceedings. Inland Waters Directorate, Canada Department of the Environment. pp 341-380.

"This paper discusses the approach and techniques used by the photo interpreter studying river patterns and features - what might be termed 'riverscape morphology.' Emphasis is placed on the airphoto-distinguishing features of different river channel and floodplain patterns and on the variables influencing them."

_____1974. Landforms and surface materials of Canada. A stereoscopic airphoto atlas and glossary. A guide to terrain analysis for engineering, geological and environmental studies, 3rd edition. Regina, Sask. 410 pp.

Chapters are devoted to different landforms; the format is similar to the 2nd edition (1972).

Muskeg Subcommittee of the N.R.C. Associate Committee on Geotechnical Research. 1968. Airphoto interpretation of muskeg. Muskeg Engineering Handbook, University of Toronto Press, Toronto. pp 53-77.

Aerial patterns of muskeg cover are provided and prediction summaries for engineering purposes are described.

Powers, W.E. and C.F. Kohn. 1959. Aerial photo-interpretation of landforms and rural cultural features in glaciated and coastal regions. Northwestern University. Evanston, Ill. 111 pp.

The monograph presents "aerial photographic identification of principal landform types developed by continental glaciation, shoreline features associated with glacial landforms, and landforms in a dry grassland marginal to glaciated plains."

Keys for the aerial photographic identification of selected farm crops, rural settlement features, and seaside resorts are given. A geographic method of aerial photographic identification is outlined.

Ray, R.G. 1960. Aerial photographs in geologic interpretation and mapping. United States Government Printing Office, Washington. 230 pp.

The paper contains a description of interpretation factors, lithologic and structural information, applications, types of instruments, and aerial photograph measurements.

Tator, B.A. 1958. The aerial photograph and applied geomorphology. Photogrammetric Engineering. 24(4):549-561.

"The chief objective of photo-interpretation in geology is to determine by utilizing the medium of the air photograph, geological features of the earth's surface through their geomorphological expressions."

U.S. Soil Conservation Service. 1966. Aerial photo interpretation in classifying and mapping soil. United States Department of Agriculture. United States Printing Office Washington. 80 pp.

"The highly technical aspects of photogrammetric engineering have been avoided . . . Several illustrations show how keys for correlating photographic images and kinds of soil can be prepared and used in the field." Aerial photograph patterns and examples of specific soils in the United States are discussed.

von Bandat, H.F. 1962. Aerogeology. Gulf Publishing Co., Houston, Texas. 350 pp.

The book presents the morphological expression of rock types, as well as an analysis of structure and landforms.

Way, D.C. 1973. Terrain analysis. A guide to site selection using aerial photographic interpretation. Community Development Series, Dowden, Hutchinson and Ross Inc., Stroudburg, P.A. 392 pp.

"The major emphasis of this volume is on utilizing aerial photographic analysis as a technique for the identification and interpretation of landforms."

II. HYDROLOGY

Howe, R.H.L. 1958. Procedures of applying air photo interpretation in the location of ground water. Photogrammetric Engineering. 24(1):35-49.

"The technique of air photo interpretation has been used and tested in the location of ground water bearing formations. A procedure for the application of this technique has been developed and improved."

_____ 1960. The application of aerial photographic interpretation to the investigation of hydrologic problems. Photogrammetric Engineering. 26(1):85-95.

"Aerial photographic interpretation has been found to be useful in the investigation of surface water problems, including: (1) the preparation of drainage maps, (2) the study of surface drainage patterns, (3) the evaluation of a watershed, (4) the study of a stream channel condition in relation to geology,

and (5) the preparation of a hydrologic model. Aerial photographic interpretation also has been applied to the investigation of ground water conditions. . . ."

Mollard, J.D. 1967. The role of photo interpretation in finding groundwater sources in Western Canada. Proceedings of the 2nd Seminar on Air Photo Interpretation in Development of Canada. Canadian Institute of Surveying, Ottawa, pp 57-75.

"Information discussed in this paper is limited to the role of air photo-interpretation in the quest for commercial groundwater supplies."

The approach to ground water search, factors affecting ground water movement and detection of springs are described.

Parvis, M. 1950. Drainage pattern significance in airphoto identification of soils and bedrocks. Photogrammetric Engineering. 16(3):387-402.

"This paper reports the analyses of drainage patterns for their use in the identification of regional soils and bedrocks, by means of airphotos.

. . . . . .

Drainage patterns, traced directly from representative airphotos of various physiographic regions throughout the United States, are presented as illustrations of patterns which develop in the soils and bedrocks typical of the regions."

Strandberg, C.H. 1966. Water quality analysis. Photogrammetric Engineering. 32(2):234-248.

"Many types of pollutants and other significant water quality conditions may be indicated by distinctive signatures on aerial photos. Some of the terminology which is used in water quality analysis is defined, some of the required supporting ground truth data is listed, and agencies to whom observations should be reported are listed."

III. VEGETATION

Hegg, K.M. 1966. A photo identification guide for the land and forest types of interior Alaska. United States Forest Service Northern Forest Experiment Station, Alaska. Nor-3. 55 pp.

The paper describes "A dichotomous elimination key, supported by ground and air stereograms, leading to the identification of the land and forest types of interior Alaska . . . . "

Howard, J.A. 1970. Aerial photo-ecology. Faber and Faber, London. 325 pp.

The factors influencing aerial photography, the elements of photogrammetry, and integrated interpretation are discussed.

Olson, D.P. 1964. The use of aerial photographs in studies of marsh vegetation. Orono Agricultural Experiment Station. Technical Series Bulletin 13, Maine. 62 pp.

The paper considers film selection, accuracy of interpretation, and keys for marsh vegetation identification.

Rinfret, R. 1964. Forest site classification in relation to photo interpretation and logging cruises. Pulp and Paper Magazine of Canada. Woodlands Review. 65(10):410-418.

This paper outlines the application of a method of forest site classification and the use of aerial photo interpretation in relation to this classification.

Sayn-Wittgenstein, L. 1961. Recognition of tree species on air photographs by crown characteristics. Photogrammetric Engineering. 27(5):792-809.

"The characteristics of tree form important in species recognition on air photographs are discussed, and brief references made to the value of phenology and ecology in species identification. Descriptions are given of the appearance of over 20 tree species on air photographs, along with elimination keys for the identification of these species."

Tomlinson, R.F. and W.G.E. Brown. 1962. The use of vegetation analysis in the photo interpretation of surface material. Photogrammetric Engineering. 28(4):584-592.

". . . the relationships between natural vegetation and surface materials observed during photo interpretation over a period of years are presented. For various types of surface material, in each of several major climatic zones, indicator species, and indicator associations of species are advanced. It is proposed that the recognition of this relationship can be used as a valuable criterion in photo interpretation of surface material."

Zsilinszky, V.G. 1963. Photographic interpretation of tree species in Ontario. Department of Lands and Forests. Toronto, Ontario. 80 pp.

The identification of the principal deciduous and coniferous tree species of Ontario is demonstrated using double-weight glossy prints.

SPECIFIC APPLICATIONS FROM NATURAL FEATURES

I. ENGINEERING

Liang, T. and D.J. Belcher. 1958. Airphoto interpretation. Landslides and Engineering Practice. Committee on Landslide Investigations Highway Research Board Special Report 29. Washington. pp 69-92.

This chapter considers the principles of air photo interpretation, the interpretation of landslides and the procedure for detecting evidence of landslides.

Mathur, B. Sen., and J.F. Gartner. 1968. Principles of photo interpretation in highway engineering practice. Ontario Department of Highways. 236 pp.

Consideration is given to the elements of photogrammetry, airphoto interpretation as applied to highway engineering, basic geological concepts, various interpretation techniques and engineering soils applications.

Miles, R.D. 1962. A concept of landforms, parent materials and soils in airphoto interpretation studies for engineering purposes. Transactions of the Symposium on Photo Interpretation, Delft. Archives Internationales de Photogrammetrie. 14: 462-476.

"It is the purpose of this paper to explain a concept of land forms, parent materials, and engineering soil group classification using the technique of airphoto interpretation. The concept is an integrated approach combining information gathered from the sciences of geomorphology, pedology, and soil mechanics."

Waelti, H. 1970. Forest road planning. Photogrammetric Engineering. 34(3):246-252.

"A systematic approach is taken to the interpretation of principal factors, namely topography, soil type and drainage regime, which in their combined effect determine the location and cost of a road. Airphoto interpretation permits one to scan large areas in a short time, and to identify critical localities early in the investigation, allowing one to concentrate field checks to these areas."

II. RECREATION

Dill, H.W. 1963. Airphoto analysis in outdoor recreation: Site inventory and planning. Photogrammetric Engineering 29(1): 67-70.

"Depending on the problem situation, airphoto analysis can be used in three different approaches; to make estimates of the overall site potential for a large area, to identify and locate 'possible' sites, and to make detailed studies of individual sites to assist in final site selection, technical planning and final presentation."

Lindsay, J. 1969. Locating potential outdoor recreation areas from aerial photographs. Journal of Forestry. 67(1):33-35.

"This study correlated standard photo interpretive techniques with seven criteria for identifying recreation land of high potential. They were population center factors, land use, water values, road systems, vegetation, aesthetic value, and unique features. All but the last two were consistently useful for recreation potential prediction."

MacConnell, P., and P. Stoll. 1969. Evaluating recreational resources of the Connecticut River. Photogrammetric Engineering. 35(7):686-692.

"Aerial photogrammetric techniques were developed and tested for identifying and classifying river-based recreation sites. A classification system was designed to describe the nature of the land itself, the land use, or the vegetation on the landscape."

Olson, E., L.W. Tombaugh, and H.C. Davis. 1969. Inventory of recreation sites. Photogrammetric Engineering. 35(6):561-568.

"The usefulness of existing USDA aerial photography in the inventory of potential outdoor recreation sites was determined . . . during the study, potential recreation sites could be located and correctly identified with sufficient accuracy to make coordinated air-photo/ground inventory methods more economical than ground methods alone. Three major types of error in the air-photo work are identified."

III. WILDLIFE

Heyland, J.D. 1972. Vertical aerial photography as an aid in wildlife population studies. Proceedings of the Canadian Symposium on Remote Sensing. Canadian Centre for Remote Sensing, Department of Energy, Mines and Resources, Ottawa. pp121-136.

"The advantages and disadvantages of visual censuses of wildlife populations are discussed . . . Experimental vertical photography has shown that several species of waterfowl, some terrestrial ungulates, narwhal, and beluga could probably be accurately censused using this technique."

———— 1974. Aspects of the biology of Beluga (Delphinapterus leucas Pallas) interpreted from aerial photographs. Proceedings of the 2nd Canadian Symposium on Remote Sensing, Guelph. Department of Energy Mines and Resources, Ottawa. pp 373-390.

"Panchromatic and colour vertical aerial photographs of beluga may be successfully interpreted to provide precise data on several aspects of the biology of beluga. Techniques relative to the acquisition and interpretation of imagery of white whales in Arctic waters are discussed."

Leedy, D.L. 1953. Aerial photo use and interpretation in the fields of wildlife and recreation. Photogrammetric Engineering. 19(1):127-137.

A summary of work done in wildlife interpretation; photographic interpretation techniques are outlined.

Murtha, P.A. 1964. The use of aerial photographs in wildlife management. Unpublished M.S. thesis. Cornell University, Ithaca, New York. 66 pp.

The study consists of two sections: (1) changes in land-use patterns and the effect upon the Hungarian partridge, and (2) analysis of deer activity in a deer yard.

INTERPRETATION OF CULTURAL FEATURES

Bruder, J.S., E.G. Large, and B.L. Stark. 1974. A test of aerial photography in an esturine mangrove swamp in Veracruz, Mexico. American Antiquity. 40(3):333-336.

"A ground truth check confirmed the utility of color aerial photography for predicting and mapping archaeological sites in an estuarine mangrove swamp zone and for serving as a basis for settlement pattern studies. Accuracy of prediction was extremely high due to the sharp response of vegetation to slight differences in elevation."

Reliable prehistoric site patterns and site signatures are described for this area.

Chisnell, T.C., and G.C. Cole. 1958. "Industrial components" - a photo interpretation key on industry. Photogrammetric Engineering. 24(4):590-602.

"A system has been devised whereby all industry can be placed in one of six categories by reference to the numbers and kinds of image components of the industry appearing on the aerial photo.

The classes of these same image components, all readily identifiable by the untrained observer, are utilized in the arrangement of illustrations in a photo interpretation key so that the user of

the key need search only a limited number of illustrations to identify the industry in question."

Davis, J.M. 1966. Uses of airphotos for rural and urban planning. U.S. Department of Agriculture. Economic Research Service. U.S. Government Printing Office, Washington. 40 pp.

An illustrated manual of features with a summary of interpretations.

Goodman, M.S. 1959. A technique for the identification of farm crops from aerial photographs. Photogrammetric Engineering. 25(1):131-137.

"This paper includes a description of a technique developed for the purpose of setting down aerial-photo identification criteria for various farm crops at several stages of growth in Northern Illinois. The general aspects of the photo appearance of these crops are also described."

———— 1964. Criteria for the identification of types of farming on aerial photographs. Photogrammetric Engineering. 30(6):984-990.

"Three sets of criteria that can be read or inferred from aerial photographs serve as indicators of types of farming: (1) farmstead features such as barns, granaries, and silos; (2) crop associations on individual farms; and (3) the uses that are made of corn and hay."

Martin, A. 1971. Archaeological sites - soils and climate. Photogrammetric Engineering. 37(4):353-357.

"A porous soil may show more sites in a wet year because these soils dry quickly. The evidence of many sites on loess may be attributed to a period of rain followed by sunshine and wind. Sites frequently do not show on conventional vertical mapping photographs but can be detected by sight from low-level flights and registered on oblique views."

Packman, D., and L.E. Philpotts. 1955. Elementary agricultural air-photo interpretation with particular reference to eastern Canada. Canada Department of Agriculture. Marketing Service, Economics Division. 103 pp.

The elements of airphoto interpretation and the identification of bedrock and geomorphic features are described.

Ryerson, R.A., and H.A. Wood. 1971. Air photo analysis of beef and dairy farming. Photogrammetric Engineering. 37(2):157-169.

"Using, as a point of departure, recommended feeding systems for cattle of different types and the ways in which cattle are housed within barns, it has been possible, using air photo interpretation, to determine, with an average level of accuracy greater than 92 percent, whether a cattle-raising farm in Southern Ontario has a dairy of a beef emphasis and how many cattle are kept on the farm."

Solecki, R.S. 1958. Consideration in the interpretation of aerial views in archaeology. Photogrammetric Engineering. 24(5):798-802.

"The uses of aerial photography for purposes of archaeological work may be divided into four parts. These are (1) documentary, (2) location, (3) evaluatory and appraisal, and (4) progress report."

Strandberg, C.H., and R. Tomlinson. 1970. Analysis of ancient fish traps. Photogrammetric Engineering. 34(8):865-873.

"Aerial photography was an effective photo-archaeological technique for detecting and analyzing a series of ancient fish traps in a section of the Potomac River near Washington, D.C. Thirty-six stone structures and one major Indian village site were discovered. The stone structures were primarily stone fish traps and fish weirs."

Vogt, E.V. 1974. Aerial photography in anthropological field research. Harvard University Press, Cambridge, Mass. 194 pp.

An analysis of specific areas and technical developments in archeological aerial photography is given.

POOR

QUALITY

ORIGINAL